pass may not be the best for some purposes, such as artillery or engineering or survey work. But these are areas that require special skill and training anyway. We are interested in the junior officer and NCO and the common soldier who work in the field.

So why don't we convert? Apparently, we have a large emotional and financial investment in the lensatic compass, and there are soldiers in the ranks today whose grandfathers used the lensatic compass. Some would say that we have so much time and money invested in it that we shouldn't change.

But our purpose is to teach our soldiers, as quickly and efficiently as possible, the skills they need to survive in a combat environment. And the time we have available for teaching them is too precious to waste on inefficient methods.

As I have seen from ROTC advanced camp after action reports and from my own experience in combined university field training exercises, many students are seriously deficient in land navigation skills. Conversations with people in a position to know at the Infantry School confirm that one of the greatest causes of failure in Officer Candidate School or in some of the other leader courses is failure to pass the land navigation portion. This is not necessary.

The protractor-type compass is not a cure-all. There is no magic wand that we can wave and make land navigation experts of our people. That comes only with hours of hard on-the-ground practice. But why do we hinder ourselves by using outmoded methods and equipment? Why do we make it difficult for our people to learn a critical infantry task?

The protractor-type compass was originally designed for military use and to give soldiers practice navigating. Eventually, it became popular with civilian sportsmen, particularly in Europe—not because it was difficult, but because it was simple.

The time for the lensatic compass has passed. It is time to move one of the most basic soldier skills into the present day, and to stop wasting time on slow, inefficient methods.

More than ten years ago, Colonel Telfair pointed the way. Let's not wait another ten years to do what needs to be done. Let's dump the lensatic now and move to the protractor compass. What are we waiting for?

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Urban Combat Doctrine
of the Salvadoran FMLN

DAVID E. SPENCER

EDITOR'S NOTE: The views herein are those of the author and not necessarily those of the Department of Defense or any element of it.

The increased urbanization in countries throughout the world has also increased the likelihood of combat in cities, especially in Latin America, as United States forces discovered during Operation JUST CAUSE in Panama.

The November 1989 urban offensive by Salvadoran guerrillas of the FMLN (*Farabundo Marti* National Liberation Front) has presented a unique opportunity for U.S. military personnel to further study the techniques of urban warfare that an opposing force is likely to use in a low intensity conflict in the future.

Fortunately, we do not have to try to discover from the events what the FMLN's urban combat doctrine was. The FMLN, in preparing for this offensive, developed an excellent manual entitled "Instructions for Urban Combat," and several copies of it were captured. The following is a summary of some of the most interesting aspects of it:

- The mission of urban combat is one of stopping and destroying enemy units by firepower, obstacles, and explosives. This is done by defending an urban area. In doing so, small lightly armed guerrilla units can eliminate large enemy units that have air, artillery, and armor support. Too, the longer the guerrilla forces manage to resist, the higher the political and military price the government forces will pay; this theoretically leads to the eventual collapse of the latter and a final guerrilla victory. The guerrillas resist by controlling routes of approach, setting up obstacles, establishing tight security, integrating military and political objectives to annihilate enemy forces, keeping logistics and communication routes open, controlling built-up zones and areas

where the enemy might bring in troops by helicopter, and neutralizing air support.

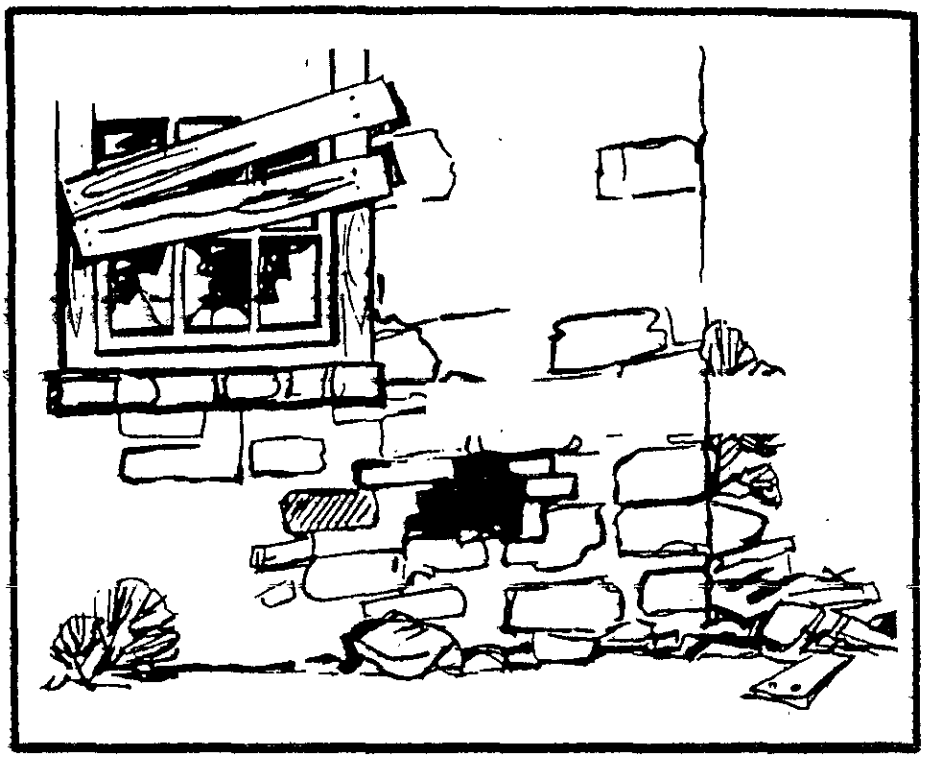
• The city is the best terrain for fighting, and that terrain can become a powerful fortress if the defenders take full advantage of it. With a few modifications, urban areas can be turned into bunkers with excellent fields of fire and communication routes, while still protecting the guerrillas from enemy fire, observation, and aerial attacks.

• The more built-up lower class residential areas offer better possibilities for urban operations, because they always have bare spots through which to move that are covered by buildings. (Many residential neighborhoods are connected to the rest of the city by only one or two main roads with foot paths leading from a road to the buildings. Since these lower class urban areas tend to spring up spontaneously rather than in a planned manner, the layout of the streets and buildings is haphazard and unpredictable, and this offers several advantages to the defender and disadvantages to the attacker.)

• Because these same areas are populated by working class people, tools are usually available, and a large number of the people will be sympathetic to the cause. Accordingly, the people can be put to work building fortifications and barricades. And because the areas are heavily populated, the armed forces will be deterred from applying their full firepower to root out the guerrillas, and if they do apply it, the resulting civilian casualties can be used for propaganda purposes.

• The first thing the defenders do to prepare the terrain is to build positions on the street corners, especially those with sidewalks. A hole can be broken in the sidewalk to make a trench, and then various materials—bricks, dirt, cement—can be piled around it. Such a position is good for rifles or RPG-2s or RPG-7s. Close to this corner position, a hole should be opened into the wall of a house that a soldier can move into for protection.

• When a house is occupied, a defensive position is dug on the first floor preferably next to a wall, and then fortified. A hole is knocked into a wall just big enough for observation and fire. Doors and windows can also be used, but they should be covered with bricks and other materials, leaving only the small hole.



• Communications trenches should be dug in occupied houses so that they permit movement from one house to another, from one street to another, from one block to another. These trenches should be about one and one-half feet wide by three and one-half feet deep so that one person can move through them freely. Large holes should be knocked in the walls to facilitate movement between houses. (Many houses are built side to side and back to back.) This allows a guerrilla to move without exposing himself to enemy fire or observation. If the enemy penetrates a guerrilla position in a building, the guerrilla force can retreat and then use these holes to move undetected and counterattack the enemy from a flank.

• Roofs can be used for antitank weapons, observation, snipers, and heavy machineguns, and the upper floors for observation, machineguns, and snipers. Positions in the upper floors should be fortified with all available materials and should also have access to lower floors for refuge from aerial and indirect fire attacks. Overhead cover should be added to all positions to protect the occupants from mortar fire and bombs dropped by aircraft.

• Mortars, because of their high angle of fire, do not have to be placed in high places, but they do need an observer in a high place who has a field of vision to the targets and either visual or radio contact with the mortars.

• Barricades should be placed in all the streets approaching the guerrilla position. Anything can be used for barricades—cars, buses, logs, dirt, bricks—but these should be combined with mines and deep trenches to impede the movement of armored vehicles.

• Minefields should be laid to stop not only vehicles but troops as well. Booby traps should be placed in the windows and doors of buildings, and mines should be placed in any open spaces where the enemy may try to land troops by helicopter.

• The enemy has the capacity to launch night operations, and in urban terrain his approach may not be limited to the roads and open spaces but may be through a hole in a wall, an underground tunnel, or from roof to roof. To defeat enemy operations at night, defensive positions must be changed as soon as it is dark to fool the enemy as to their real locations. These new positions must be chosen so that critical points and routes of approach are still under guerrilla control. Any open sectors must be occupied or patrolled. Wherever possible, captured night vision devices

must be used. Control of communication routes is maintained by early warning devices and forward listening and observation posts.

During the November 1989 operation, the guerrillas were generally able to set up urban defenses according to this manual if they were not attacked for more than 12 hours after penetrating an area. In addition, they used a large number of snipers and sharpshooters. These soldiers would find the highest point in an area, whether it was a tree or a tall building, and harass the government forces, whose soldiers suffered a large number of gunshot wounds to the head.

Although the manual does not mention the preparation phase for the 1989 offensive, the guerrillas spent months, possibly years, preparing for it. Beginning as early as 1986, the FMLN began infiltrating cadres back into the cities to carry out urban terrorism and to prepare the political climate for an urban uprising by penetrating labor unions and student organizations.

In 1988 the FMLN completely reequipped itself with Soviet-designed weapons, probably so the required amounts of material could be brought into the country in preparation for the offensive. Western-designed weapons were becoming hard to obtain from Cuba, Vietnam, and Nicaragua. The new Soviet weapons were brought in in trucks equipped with false panels in the sides, roofs, and floors under which the arms were stored. These trucks were hard to detect because El Salvador had no weighing stations and could not check the actual weight of a truck against the weight shown on a manifest.

In addition, personnel and weapons were prepositioned in safe houses all around the target cities. In some areas they had targeted for takeover, guerrillas rented or bought apartments and then secretly converted them into bunkers by adding second walls and making other modifications.

It is not clear exactly how the FMLN managed to mass their troops and move into San Salvador undetected, but the city is laced with deep ravines and streams originating from the two volcanoes that flank the city. It is known that the guerrillas followed these to penetrate some neighborhoods. Many no doubt came in before the offensive, and Salvadoran Army sources claim that some were brought in under cover of darkness inside armored trucks disguised as moving vans, with a second layer of steel plate welded on the inside to protect the human cargo from rifle fire.

The FMLN's urban doctrine was designed to take care of two basic problems of the guerrilla fighter in urban terrain—the enemy's air power and his armored vehicles. It placed great emphasis on various methods of accomplishing this, but this did not always mean using weapons. For a guerrilla fighter, there is no distinction between political and military means of winning a war. In this case, the FMLN directed that the combatants establish themselves in the most densely populated areas of the city. This would neutralize the power of the air force and in many cases would also deter the use of the armored vehicles' cannon and heavy machinegun fire. Barricades, obstacles, minefields, and antitank weapons would prevent the Salvadoran armor from attacking. This left the Salvadoran infantry—which had no urban combat training—to try to force the guerrillas out of heavily fortified buildings, an obvious advantage to the defender. This meant that the job would be slow and the casualty rate high.

Although the FMLN manual is generally in harmony with the U.S. urban combat doctrine found in Field Manual 7-8, it contains no techniques for assaulting fortified buildings. This curious omission indicates two things:

First, the FMLN was counting on surprise to enable the guerrillas to occupy the urban area of San Salvador quickly and then to defend it. To initiate the offensive, the FMLN improved the element of surprise by launching several diversionary raids against military bases. These raids were an attempt to keep the troops in the barracks and to cause the military services to focus on the security of their bases while the guerrilla forces quietly slipped into the city to set up their defenses.

Second, the omission reflects the basic premise of the guerrilla tactic of defeating a more powerful force with a weaker one: The guerrillas could not afford to waste their strength taking defended and fortified buildings; instead they would force the government forces to try to take the guerrillas' fortified urban positions.

The FMLN doctrine was designed to try to put the armed forces and government of El Salvador in a no-win situation. The longer they took to drive the guerrillas out, the greater the political victory would be for the insurgents, and the stronger the national and international press would perceive them to be.

On the other hand, if the government forces used their heavy weapons—artillery, aviation, and armor—they would quickly drive the guerrillas out, but at such a high civilian cost that it could provoke a general uprising.

FMLN urban doctrine is heavily influenced by the experience of the Viet Cong during the Tet offensive of 1968 and by the Sandinista experience during the battle for Managua in 1979. In Vietnam, the insurgents' show of force, even though they exterminated themselves in the process, signaled the beginning of defeat for the forces of the United States and the Republic of Vietnam. In Managua, when Anastasio Somoza decided to use his air force and armor indiscriminately against guerrillas who were mixed in with the civilian population, the resulting casualties provoked the anger of the Nicaraugan people and led to his rapid overthrow.

While the effects of the November 1989 FMLN offensive are still being felt, it should be noted that insurgent urban combat doctrine is often directed toward an overriding political goal rather than a short term military victory. In a future conflict of this type, therefore, it is likely that a U.S. opponent force will employ similar urban combat doctrine.

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